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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/598,896 | 06/22/2000 | Jose Luis Gonzalez De Prado | Q59609 | 8570 |
| 7590 12/16/2004 | | | | |
| Sughrue Mion Zinn MacPeak & Seas PLLC 2100 Pennsylvania Avenue N W Washington, DC 20037-3213 | | | EXAMINER MEW, KEVIN D | |
| | | | ART UNIT 2664 | PAPER NUMBER |

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/598,896

Applicant(s)

GONZALEZ DE PRADO, JOSE
LUIS

Examiner

Kevin Mew

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Response to Amendment

1. Applicant's arguments filed on June 30, 2004 regarding claims 1-17 have been fully considered and claims 1-17 are currently pending.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7-10, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Cheng (US Patent 5,563,883).

Regarding claims 1, 8, Cheng discloses a method and an apparatus in which a multiple access radio communication system (**multiple access in a radio communication system**, see col. 5, line 8 and Figure 1, element 18) can be adopted for a TDMA scheme (**fixed unit and remote units employ time division multiple access techniques**, see col. 6, lines 57-60) to provide dynamic signaling channel allocation (see col. 6, lines 54-57). Cheng discloses that the system comprises a central controller that interchanges signaling messages with a plurality of remote terminals (**interchanging signaling messages between at least one fixed unit and a set of remote units**, see col. 5, lines 2-3, and Figure 2). Cheng further discloses a pool of signaling channels (**signaling multiframe, predetermined number of virtual identities for signaling**), provided by the central controller (**a first controller means**, see col. 7, lines 36-38 and Figure

2), are used to support signaling between the central controller and remote terminals in both the forward and reverse directions (**signaling multiframe is formed by a predetermined number of virtual identities for signaling which are generated by a first controller means, signaling multiframe is used in both transmission directions**, see col. 5, lines 12-21). The central controller (**the first controller means**) dynamically adjusts (**increases or/and decreases**) the number of signaling channels (**the predetermined number of virtual identities for signaling which are independent of the true identities of the remote units**, see col. 5, lines 58-67 and col. 6, lines 1-14 and Fig. 2; note that the forward direction signaling channels FD-1, FD-2 to FD-a and reverse direction signaling channels RD-1, RD-2 to RD-n are interpreted as signaling channel identifiers for signaling which identify the signaling channels being established between the central station and the remote units, and are independent of the true identities of the remote units or the remote terminal serial number) to meet the requirements of varying traffic demand (**based on the level occupancy of the signaling multiframe**) and the system growth (**the first controller means increases or/and decreases the predetermined number of virtual identities for signaling based on the level of occupancy of the signaling multiframe**, see col. 2, lines 44-46, col. 3, lines 36-37 and lines 45-47). It is interpreted that the action of the central controller dynamically adjusting the number of signaling channels is equivalent to the action of increasing or/and decreasing the number of virtual identities for signaling because the term “adjusting” means either increasing or decreasing. Furthermore, the term “varying traffic demand” is interpreted as the equivalence of “the level of occupancy of the signaling multiframe” because higher traffic demand requires more signaling channels, which means higher level of occupancy of the signaling multiframe.

Regarding claims 2, 9, Cheng discloses that the number of signaling channels is less than the number of the remote terminals (**the number of virtual identities is less than the number of remote units**, see col. 6, lines 26-28).

Regarding claims 3, 10, Cheng discloses a signaling frame (see Figure 9) comprising a signaling action type field in which a signaling channel number is transmitted. There is no indication that the creation of this signaling channel (virtual identity) is based on remote terminal identity (identity of remote unit). Therefore, the signaling channel identity bears no association with the remote terminal identity (see Figure 9). Cheng further discloses that the central controller, comprising a pool of transmitters (see line 5, abstract), transmits signaling channels to a group of remote units in a downlink direction (**virtual identities are broadcast by a first radio transmitter included in the fixed unit over a pilot channel in the downlink transmission direction**, see col. 7, lines 36-38 and Figure 2).

Regarding claim 7, Cheng discloses signaling channels (**signaling multiframe**) availability is determined by the bandwidth of the signaling channel (**the signaling multiframe is formed by a maximum number of virtual identities for signaling that is a function of maximum duration permissible for said signaling multiframe**, see col. 8, lines 35-39).

Regarding claims 14, 15, Cheng further discloses a pool of signaling channels (**signaling multiframe, predetermined number of virtual identities for signaling**), provided by the central controller (**a first controller means**, see col. 7, lines 36-38 and Figure 2), are used to

support signaling between the central controller and remote terminals in both the forward and reverse directions (**first controller means is adapted for generating a number of virtual identities for signaling**, see col. 5, lines 12-21). The central controller (**the first controller means**) dynamically adjusts the number of signaling channels (**increases or/and decreases the predetermined number of virtual identities for signaling**) to meet the requirements of varying traffic demand (**as a function of the level of occupancy of the signaling multiframe**) and the system growth (see col. 2, lines 44-46, col. 3, lines 36-37 and lines 45-47). Cheng further discloses signaling channels (**signaling multiframe**) availability is determined by the bandwidth of the signaling channel (**a maximum number of virtual identities for signaling which is a function of the maximum duration permissible for said signaling multiframe**, see col. 8, lines 35-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4-6, 11-13, 16 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng in view of Grauel et al (US 4,573,206).

Regarding claims 4, 11, 16 & 17, Cheng discloses all the aspects of the claimed invention as set forth in the 102(b) rejection of claims 3, 10, 8, respectively, above, except fails to disclose that a remote terminal records the predetermined number of virtual identities. However, Grauel

discloses a radio transmission system (see col. 2, line 66) in which a mobile radio station, comprising a receiver (see Figure 1), would run a search for the control (signaling) channel with the best signal-to-noise ratio (**choosing a virtual identities for signaling of the received inside the pilot channel**, see col. 3, lines 39-42) and stores the channel number of this channel. This would indicate that the remote terminal comprises a control means to store the available signaling channels in a memory means (**a remote unit being fed to a second controller means for recording the predetermined number of virtual identities for signaling**). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the remote terminal of Cheng such that the remote terminal would record the predetermined number of virtual identities for signaling such as the mobile radio station taught by Grauel. Having the remote terminal store the predetermined number of signaling channels in memory can modify the mobile terminal of Cheng. The motivation to do so is to record each available signaling channel number because it would allow remote terminal to select a particular signaling channel to use from the pool of available signaling channels.

Regarding claims 5, 12, Cheng discloses all the aspects of the claimed invention set forth in the rejection of claim 4, 11, respectively, above. Cheng further discloses each of said plurality of remote terminals comprising signaling data transmitting means for transmitting signaling data on an unassigned communication channel (**insert the signaling message inside the virtual identity selected, so as to be transmitted by a second radio transmitter**, see col. 18, lines 17-18 and 24-25) and a central controller comprises a receiving means for receiving user traffic or

signaling data on said communications channel (**a first radio receiver included in the fixed unit receives the signaling message**, see col. 17, lines 6-7 and lines 14-15).

Regarding claims 6, 13, Cheng fails to disclose that signaling channel number would be marked as occupied in the fixed unit controller, and broadcasted by the fixed unit. However, Grauel discloses a mobile station would do a search for a control channel (signaling frame) when it is ready to transmit in a radio zone. When a control channel is selected, the mobile station would store channel number of the control channel. It is inherent that once a mobile station selects a channel number, the central controller of the base station, comprising a pool of receivers (see line 5, abstract), would be notified by the mobile station that particular signaling channel is being occupied (**the first radio receiver adapted for supplying the first controller means with the signaling multiframe**), and broadcast this information via a transmission channel to all mobile units so that other mobile stations can skip this signaling channel while searching for an available signaling channel (**the selected virtual identity marked as occupied**). Cheng further discloses that the central controller, comprising a pool of transmitters (see line 5, abstract), transmits signaling channels to a group of remote units in a downlink direction (**broadcast over the pilot channel**, see col. 7, lines 36-38 and Figure 2). Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to modify the fixed unit controller of Cheng such that the fixed unit would mark the signaling channel as occupied such as the base station taught by Grauel. Having the fixed unit controller monitor signaling channel status and broadcast this status information to all remote units can

modify the fixed unit of Cheng. The motivation to do so is to mark the signaling channel as used because it would reduce the time it takes to search for an available signaling channel.

Response to Arguments

4. Applicant's arguments filed on June 30, 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show the limitation "a system and method that increases or/and decreases a predetermined number of virtual identities for signaling based on the level of occupancy of a signaling multiframe" and "signaling multiframe which is formed by a predetermined number of virtual identities for signaling which are independent of the true identities of a plurality of remote units" as recited in claims 1 and 8, it is noted that the prior art reference Cheng indeed discloses a method for dynamically adjusting the number of signaling channels to meet the requirements of varying traffic demand and the system growth (see abstract, lines 9-11, col. 2, lines 44-52, col. 3, lines 36-47). Also, the recitation of "dynamically adjusts the number of signaling channels" in Cheng corresponds to the limitation of "increases or/and decreases a predetermined number of virtual identifies," and "to meet the requirements of varying traffic demand" corresponds to the limitation of "based on the level of occupancy of a signaling multiframe."

Cheng also further discloses the dynamic signaling channel adjustment involves the forward direction signaling channels FD-1, FD-2 to FD-a and reverse direction signaling channels RD-1, RD-2 to RD-n, which are interpreted as merely the signaling channel identifiers

(virtual identities) which identify the signaling channels being established between the central station and the remote units, and therefore are independent of the true identities of the remote units or the remote terminal serial number (col. 5, lines 58-67, col. 6, lines 1-14 and Fig. 2). Furthermore, the Examiner's rejections of claims 1 and 8 are not based on using the remote terminal serial number to identify signaling channels during dynamic signaling channel assignment. Therefore, the Examiner made no suggestion on "the remote terminal serial number in the signaling action type field (SAT) for channel assignment is somewhat related to virtual identities generated by the fixed unit" as described on page 9 of the Applicant's arguments. Therefore, it is concluded that claims 1 and 8 are unpatentable under 35 U.S.C. 102(b) as being anticipated by the prior art reference Cheng. Also, claims 2-3, 7, 9-10, 11-17 are unpatentable under 35 U.S.C. 102(b) as being anticipated by Cheng by virtue of their dependency on claims 1 and 8, respectively.

In response to the applicant's argument that the motivation of combining Grauel et al. (USP 4,573,206) with Cheng in the rejection of claims 4-6 under 35 U.S.C. 103(a) is not explicitly disclosed, it is noted that a new motivation of combining Cheng with Grauel is given here by the Examiner. That is, the motivation for combining Cheng with Grauel is to store the control channel number in the mobile terminal for the purpose of monitoring the signal-to-noise ratio of the control channel and to scan other control channels in the event the signal-to-noise ratio of this control channel falls below a given value.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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